

**REMARKS/ARGUMENTS****AMENDMENTS****Comments on the Amendments to the Claims**

The new claims set out above require

- (1) that the first layer of insulation contains at least 60% by weight, based on the weight of all the polymers in the composition, of the carbonyl-containing polymer;
- (2) that the second layer contains at least 50% by weight of PVDF or a VDF copolymer or both; and
- (3) that the first layer is positioned between the conductor and the second layer.

As further discussed below, it is clear that these requirements overcome the rejection of the claims under 35 U.S.C. § 103. Other amendments have also been made, but, there being no other rejections, it is clear that those amendments have not been made for reasons relating to the statutory requirements for patentability.

Basis for the amendments made to the claims is discussed in a separate section after the next section, which discusses the basis for the amendments to the specification.

**Basis for the amendments to the specification.**

If the Examiner would like to have clean copies of the amended pages of the specification, they will be supplied on request.

The following comments, which are made by reference to the numbered paragraphs of the amendments to the specification, will clarify the basis for those amendments.

1. - 2. No comment is necessary.

3. Since the layer (i) can be based solely on the carbonyl-containing polymer, the references to it as "based on a polyolefin" or "polyolefin-based" have been removed. The same amendment has been made in the claims and in the remainder of the specification

(except in the Examples, where the original terminology has been maintained, with an added explanatory comment before the Examples (see item 23 of the amendments).

4. - 9. No comment is necessary

10. This paragraph now reflects the wording of the amended claims, with the retention of the various preferred features in the original specification. The Examiner will note that the first aspect of the invention, and corresponding new Claim 28, are directed to insulated wires in which the two defined layers of insulation can be, but are not necessarily, cross-linked. Insulated wire in which the defined layers have not been cross-linked is a valuable intermediate product, and clearly forms part of present invention-- see for example page 2, lines 8-13, and elsewhere in the PCT specification.

Basis for the statement that each of the compositions consists of a polymeric component and optionally a non-polymeric component is to be found on page 4, lines 10-15, of the PCT specification. For the sake of completeness, it is noted that the recitation of an optional component does not give rise to any lack of clarity, at least when, as in the present case, the composition is defined as "consisting of" a first specified ingredient and an optional second specified ingredient.

Basis for the statement that the percentages of the carbonyl-containing polymer are based on the weight of the first polymeric component, or, in some embodiments based on the weight of the whole composition, is to be found on page 2, lines 21-22, and page 3, lines 13-14, of the PCT specification.

Basis for the statement that the monomer containing the carboxylic acid ester group can be copolymerized with an olefinic monomer is based on the statement on page 2, lines 28-29, of the PCT specification, that when the carbonyl-containing polymer is a copolymer or terpolymer, the remainder is preferably derived from olefinic monomer, preferably ethylene.

Basis for the statement that the carbonyl-containing polymer can for example contain 15 to 28% by weight of the monomer containing a carboxylic acid ester group is to be found in the Examples, in which the contents of the monomers are 28 % (in the second material in the second table on page 8) and 15% (in the third, fourth and fifth materials in the first table on page 8), as well as intermediate values.

The phrase "copolymer or terpolymer" on page 2, line 8, of the PCT specification has been amended to --copolymer, including terpolymer --to make it clear that the specification uses the term copolymer to include polymers containing repeating units derived from two or more monomers, not merely from two or three monomers.

Basis for the statement that the second composition contains for example substantially 100% of the VDF polymer is to be found in Claim 6 and the Examples, in many of which the second composition ("Material 2") consists of the VDF polymer, of the PCT specification.

Basis for the statement that the preferred cross-linking step causes cross-linking of polymers at the interface between the layers is to be found on page 6, lines 4-5, of the PCT specification.

Basis for the statement that the peel bond strength is preferably more than 10N, is to be found on page 5, line 4, of the PCT specification.

Basis for the test set out in paragraph (b) and the results of the test are to be found on page 5, lines 5-18, of the PCT specification.

11. This new paragraph has been added to make it explicitly clear that the normal rules for interpretation apply to this specification, thus making its unnecessary, for example, to use phrases such as "at least a first layer" and "at least a second layer".

12. This paragraph has been amended to provide a counterpart for the new method Claim 51, the substance of the original paragraph having been incorporated into the new paragraph set out in item 10.

13. No comment is necessary.

14. This new paragraph finds basis in the numerous references in the PCT specification to the first composition being a "polyolefin-based material", and the use of a mixture of an ethylene/ethyl acrylate copolymer and high-density polyethylene on page 10, lines 1-3.

15. - 19. No comment is necessary.

20. Basis for the statement that the first layer, in some embodiments of the invention, is in direct contact with the conductor, and/or is the sole insulation around the conductor, is to be

found in the specific Examples. Basis for the statement that the first and second layers are part of multilayer insulation is to be found on page 1, line 5, and Claim 12, of the PCT specification.

Basis for the Amendments to the Claims.

The claims previously pending in the application have been canceled and replaced by new claims 28-56. These new claims correspond closely to the disclosure of the amended specification, and it is believed that the Examiner, having satisfied himself as to the basis in the PCT specification for the amended specification, will have no difficulty in seeing that there is likewise basis for the amended claims.

The Rejections under 35 U.S.C. § 103

Applicant respectfully traverses the rejections of

- (i) claims 1-5, 9-11,13,15, 17-21,25 and 26 under 35 U.S.C. § 103 as unpatentable over W0 97/27260 (Miyaki) in view of U.S. Patent No. 4,693,940 (Vogdes),
- (ii) Claims 6,7, 22 and 23 under 35 U.S.C. § 103 as unpatentable over Miyaki in view of Vogdes and U.S. Patent No. 3,864,228 (Rossetti),
- (iii) claims 8 and 24 under 35 U.S.C. § 103 as unpatentable over Miyaki in view of Vogdes and U.S. Patent No. 4,454,249 (Suzuki),
- (iv) claims 12 and 27 under 35 U.S.C. § 103 as unpatentable over Miyaki in view of what this band U.S. Patent No. 3,632,441 (Bilow),
- (v) Claim 14 under 35 U.S.C. § 103 as unpatentable over Miyaki in view of Vogdes and Lagow, and
- (vi) Claim 16 under 35 U.S.C. § 103 as unpatentable over Miyaki in view of Vogdes and Dola,

insofar as those rejections are applicable to the amended claims.

The starting point for each of these rejections is the Miyaki reference. As discussed in detail below, the objective of Miyaki is different from the objective of present invention, and Miyaki fails to disclose or suggest essential features of the invention defined by the amended claims. Indeed, Miyake points away from the present invention by making it clear that, in order to achieve his objectives, it is essential to avoid the use of compositions as defined by Applicant's amended claims.

As noted on page 1, lines 33-35, Miyaki "has the objective of improving the adhesion of fluorinated resins to metal materials, and of offering a method for obtaining composite materials of metal materials and fluorinated resins." This objective is stated to be achieved through the use of an adhesive composition comprising at least two of (a) a polyvinylidene fluoride (PVDF) resin, (b) an acrylic or methacrylic polymer containing functional groups, e.g. ester groups, for example a polymer containing units derived from methyl acrylate or ethyl acrylate, and (c) a vinylidene fluoride (VDF) copolymer, e.g. a copolymer of vinylidene fluoride and hexafluoropropylene. The composition can be used as the sole coating material on a metal substrate, or as an adhesive agent for sticking a different fluorinated resin, for example PVDF and/or vinylidene fluoride copolymer resins, to a metal substrate (p. 4, lines 25-26, p. 5, lines 20-22, and Example 6). The composition can be used for "electric wire coating by means of a fluorinated resin" (p. 5, lines 14-16).

The proportions in which the polymers (a), (b) and (c) are to be used in Miyaki's adhesive compositions are disclosed on page 3, lines 28-31, page 4, lines 17-24, and on page 7, lines 12-20. According to pages 3 and 4, the maximum amount of polymer (b), i.e. the acrylic and/all methacrylic polymer, is under 50%, based on the weight of the polymers [100 parts of the PVDF resin (a), 100 parts of the acrylic and/or methacrylic polymer (b), and 1 part (or 10 parts on page 4) of the VDF copolymer (c)]. Page 7 puts a much lower maximum of 20% on the amount of the acrylic and/or methacrylic polymer (b). The need to avoid excessive amounts of the acrylic and/or methacrylic polymer (b) is made clear by Miyaki's Comparative Examples.. Thus, in the Comparative Example 1, the adhesive composition contains about 23% of the acrylic and/or methacrylic polymer (b) [100 parts of a PVDF resin and 30 parts of an acrylic and/or methacrylic polymer], and leads to unsatisfactory results.

The problem addressed by the present invention is different from the problem addressed by Miyaki. The present invention is concerned with the lack of adequate adhesion between two layers of very different polymeric materials, not the lack of adequate adhesion between a metal and a polymeric composition. Miyaki, by contrast, is concerned only with the problem of lack of adequate adhesion between a metal

substrate and a VDF polymer-based material. There is no disclosure or suggestion in Miyaki that the adhesive compositions disclosed therein have improved adhesion to polymers which are not fluorinated.

It is an essential feature of Miyaki, when two polymeric layers are present, that there is a metal substrate, an inner layer of the particular VDF polymer adhesive composition in direct contact with the metallic substrate, and an outer layer of the same or a different VDF polymer in direct contact with the inner layer. There is no disclosure or suggestion in Miyaki that either of these two layers can be replaced by a layer of a "first polymeric composition" as defined in the amended claims, or that such a layer can be added to any article as disclosed by Miyaki. The Office Action apparently overlooks this important difference between the claimed invention and Miyaki.

The Official Action correctly notes that Miyaki's adhesive composition can contain an acrylic ester copolymer. However, as pointed out above, there is no disclosure in Miyaki of any composition in which the proportion of the acrylic and/or methacrylic ester copolymer can be as large as 60% minimum of Applicant's claims. Furthermore, Miyaki points away from the use of such proportions by preferring proportions of less than 20% and providing experimental proof that the use of 23% leads to unsatisfactory results.

Amended claims 31, 32 and 37-50 defined the polymeric components of the first polymeric composition so as to exclude the presence of substantial quantities of PVDF or a VDF copolymer. These claims, therefore, are yet more clearly distinguished from Miyaki.

It is believed to be clear, having regard to the facts stated above, that all the rejections under 35 U.S.C. § 103 should be withdrawn. For the sake of completeness, however, the following points are to be noted. New claims 29, 30, 38, 39, 48, 49 and 51-56 require a cross-linking step, which is not disclosed by Miyaki. All of the rejections rely on Vogdes to make good Miyaki's failure to disclose cross-linking. However, as discussed in detail below, Vogdes cannot properly be combined with Miyaki, since there is no reason why one of ordinary skill in the art, ignorant of the Applicant's invention, would consider Vogdes to be of any value for modifying Miyaki's disclosure.

Vogdes is concerned with the adhesion between two layers of incompatible polymers (one of which may be a VDF polymer), not the adhesion between a metal substrate and a VDF polymer. There is no reason, therefore, why one seeking to modify Miyaki's teaching

would regard Vogdes as a useful source of information. It is well-settled law that a rejection cannot properly be based on a combination of references unless there is some reason to read the references together. As the MPEP puts it in 2143.01

*First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.*

As the CAFC put it in ACS Hospital Systems vs. Montefiore, 221 USPQ 929

*Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined **only** if there is some suggestion or incentive to do so.*

The Examiner has not given any reason for combining Vogdes with Miyaki. Nor is there in fact any such reason. On the contrary, there are positive reasons why the references would **not** be read together. Insofar as Miyaki is concerned with articles containing two polymeric layers, each of the layers is composed of a composition containing a VDF polymer, and the polymeric compositions are **explicitly designed to be compatible** with each other. Miyaki's layers are not, therefore, composed of **incompatible** polymers, which is the essential starting point for Vogdes' disclosure. Without knowledge of the present invention, therefore, there is no reason to read Miyaki and Vogdes together.

Having regard to the facts and argument set out above, it is believed to be clear that consideration of the tertiary references (Rossetti, Suzuki, Bilow, Lagow and Dola) is not required.

## INTERVIEW

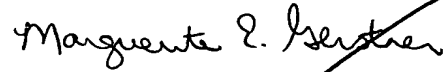
The Interview Summary attached to the Office Action mailed 06/18/2003 correctly reports the substance of the interview.

## CONCLUSION

It is believed that this application is now in condition for allowance, and applicant respectfully requests that a timely Notice of Allowance be issued in this case. If, however,

there are any outstanding issues that could usefully be discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,

A handwritten signature in cursive script, reading "Marguerite E. Gerstner". A long, sweeping horizontal line extends from the end of the signature to the right, underlining the text.

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